

AMENDMENTS TO THE CLAIMS

The following claims replace all prior versions and listings of claims in the application:

1. (Currently Amended) Apparatus for measuring the efficiency of transport of modem relay packets over a packet network, comprising:

a first means for connecting to a first gateway of said modem relay connection;

a second means for connecting to a second gateway of said modem relay connection;

a computing device, operably connected to each of said first connecting means and said second connecting means through a network, and

for running at least one terminal program for at least one of said gateways after a steady-state connection has been established between said first means and said second means;

for providing a reference modem data stream at a known throughput modem stream generation rate to at least one of said gateways,

wherein said reference modem data stream has at least one digital file that is independent from setup and protocol files for said first and said second means; and

for receiving a transported modem data stream at a modem stream reception rate from a second one of said gateways after said reference modem data stream has passed through said gateways and said packet network; and

means for determining the transport efficiency of said packet network by

comparison of said known ~~throughput~~ modem stream generation rate of said reference modem data stream to said ~~a~~ determined throughput rate of said received modem data stream.

2. (Currently Amended) The apparatus of claim 1, wherein:

said terminal program runs a Z-modem protocol for generating said modem data stream at a known ~~throughput~~ generation rate.

3. (Currently Amended) The apparatus of claim 1, wherein said computing device:

runs a terminal program for each of said gateways;

provides a reference modem data stream at a known ~~throughput~~ generation rate to each of said gateways;

receives a transported modem data stream from each of said gateways after said reference modem data stream has passed through said gateways and said packet network; and

determines the transport efficiency of said packet network by comparison of said known ~~throughput~~ generation rate of said reference modem data stream to said determined throughput rate of said received modem data stream.

4. (Currently Amended) The apparatus of claim 1, wherein said throughput efficiency is measured after said gateways have negotiated appropriate protocols ~~and~~

~~have established a steady-state connection~~ over said packet network.

5. (Original) The apparatus of claim 1, wherein said modem relay connection is established across a network.
6. (Original) The apparatus of claim 1, wherein said modem relay connection is established across a network simulator.
7. (Original) The apparatus of claim 6, further comprising:
means for control of network transport parameters of said network simulator.
8. (Original) The apparatus of claim 7, wherein said controlled parameters include packet loss and packet delay.
9. (Original) The apparatus of claim 8, wherein said parameters can be varied to selectively simulate uniform distribution of packet loss and random distribution of packet loss.
10. (Original) The apparatus of claim 7, further comprising:
means for providing alternative packet protocol algorithms to at least one of said gateways and measuring comparative throughput efficiency while maintaining fixed

network conditions to provide a common evaluation reference.

11. (Currently Amended) The apparatus of claim 1, wherein:

said determination of said transport efficiency includes at least two iterative repetitions of said provision of said reference modem data stream and said reception of said transported modem data stream and said comparison of said known ~~throughput~~ generation rate of said reference modem data stream to said ~~determined throughput~~ reception rate of said received modem data stream; and

wherein said determination is based upon the average efficiency determined after a series of said iterations.

12. (Currently Amended) A method for measuring the efficiency of transport of modem relay packets over a packet network, comprising:

providing a reference modem data stream at a known ~~throughput~~ generation rate to a first one of a plurality of gateways of a modem relay connection;

receiving a transported modem data stream from a second one of said gateways after said reference modem data stream has passed through said gateways and said packet network; and

after a rate negotiation and a steady-state have been reached between said gateways, comparing said known ~~throughput~~ generation rate of said reference modem data stream to said determined throughput rate of said received modem data stream by

fixing network conditions and varying one or more network conditions while transmitting a digital file as said reference modem data stream, to determine a network transport efficiency.

13. (Previously Presented) The method of claim 12, further comprising:

collecting a group of data representative of the network throughput efficiency under a number of network conditions and corresponding to a plurality of known file transfer protocols;

determining the network throughput efficiency values corresponding to a the plurality of file transfer protocols and determining the average rate for a given protocol with given network conditions; and

generating a representation indicative of the relationship between modem relay system design and packet transport efficiency across said network.

14. (Currently Amended) A method to measure throughput efficiency of low speed modem relay over packet networks, comprising:

establishing a modem call over a modem relay system between a first modem to a second modem over a network through a modem relay system comprising a first gateway, connected locally to said first modem ~~over a PSTN line~~, and a second gateway, connected through a packet network to said first gateway and connected locally to said second modem ~~through a PSTN line~~;

transmitting a demodulated data stream of said modem call over said packet network;

establishing a steady-state connection over the packet network;

generating a plurality of reference modem data stream throughput rate rates of a first file type by repeatedly transmitting said first file type across from said first gateway to said second gateway as said reference modem data stream,

wherein said first file type is independent from setup and negotiation protocols of said modems and said gateways;

measuring a first modem data stream reception rate during said modem call for a particular protocol by determining an average throughput rate of said first file type;

repeating said generating and said measuring for a second file type,

wherein said second file type is independent from setup and negotiation protocols of said modems and said gateways; and

measuring throughput efficiency of said modem relay by comparing said average modem data stream reception rate rates with said reference modem data stream generation rates.

15. (New) The method of claim 14, wherein said measuring and said repeating are performed on both said first gateway and said second gateway and a comparison of said measuring from both said gateways are used to determine said throughput efficiency.

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